

MM500 *VarioV* series

Power potentiostats with flexible output ranges

Models available

Volt Model	5 V	10 V	22V	45V	90V
510-V50	N/A	bipolar	bipolar	bipolar	0 V
540-V100	bipolar	bipolar	N/A	N/A	bipolar
540-V200	1/0 V(opt)	1/0 V(opt)	N/A	N/A	N/A
560-V500	1/0 V(opt)	1/0 V(opt)	N/A	N/A	N/A

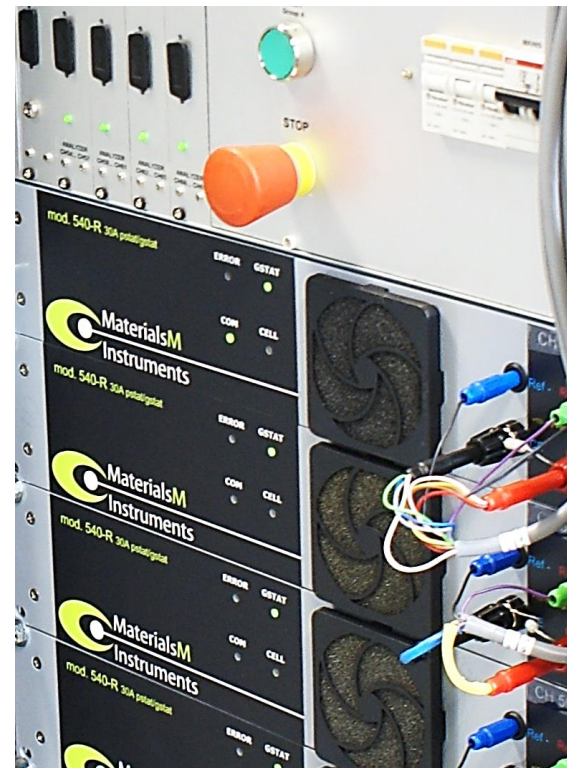
Materials Mates equipment is available in more than 30 countries worldwide through a network of qualified distributors. Ask us for a complete list of reference customers worldwide and talk to our engineers to find the perfect solution for your needs

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Features

- Wide power range from 50 to 500 W
- Wide voltage range to 90 V (and above)
- 15 types available to customize an optimal solution
- Efficiently integrates DC and AC performances
- 1 to 4 quadrants operations
- Built-in Impedance Spectroscopy 1mHz -20KHz range, with additional inputs
- Synchronous operation on multichannel configuration
- Built to test electrochemical processes, Batteries, fuel cells and electrolyzers at life-size conditions
- Fully compatible with our high power 58X series



Materials Mates Italia (MMI) offers complete solutions for electrochemistry , from impedance spectroscopy to high-power multichannel systems for stacks, including standard and customized cells. MMI also integrates in their systems a series of additional ancillary equipment to complete the test setup.

We furthermore supply flexible software drivers to manage the equipment from external programs.

Please feel free to contact us for a free evaluation of your system requirements.



For over 10 years the MMI 500 series potentiostats have been delivering to our customers reliable operations and consistent results with an unbeatable record of MTBF of more than 100 yrs calculated on real data.

The *VarioV* technology gives for the first time independent choice of power and voltage compliance paired with optimized performances and energy efficiency as needed in energy-related studies.

The monolithic construction outperforms the use of boosters without sacrificing the flexibility: single potentiostats can be connected in parallel or in series, or even work in synchronicity for sensitive multi-electrodes or segmented applications.

Built-in 1mHz-20KHz EIS and high rate DC sampling in both sustained and burst mode make the choice simple, with no need for options. Conveniently housed in rack enclosures, they can be combined in multichannel systems with no effort.

Ethernet based communication let you run the system locally or by remote control.

The 500 *VarioV* will be your workhorse in the lab as well in the production plant for outstanding QC procedures on batteries, membranes or other products



5xx V family common features

Generation	
Voltage control range (pstat mode)	Vmin to Vmax-1 (@ full current output)
Voltage compliance	Vmin to Vmax
Current output	To specified current limits
Voltage resolution	10 uV to 10 V 100uV to 100 V 1 mV to 1000 V
Output modes	Fully bipolar and 2 quadrant with zero volt up to 100W, 2 quadrant above
Current resolution	1A units to 1 pA/ 5A units to 1 nA / 20A units to 1uA/100A units to 1 mA
Accuracy	0.1 % +/- 0.1% f.s up to 20 A units 0.3 % +/- 0.1% f.s up to 100 A units
Slew rate	>1 V / μ S rise and fall (Hi speed set)
Potentiostat Bandwidth	Selectable 50 Khz- 1 Khz (Hi speed/Hi stab) on < 250 mV pk
Protection	Hardware Current limiter @ 1,2 Imax + thermal bi-stable cutoff
Measurement	
Current measure	8 ranges to 20A 2 ranges to 100A
Current resolution	1A units to 1 pA/ 20A units to 0.1nA /100A units to 1 mA
Current Measuring accuracy	0.1 % +/- 0.1% f.s up to 20 A units 0.3 % +/- 0.1% f.s up to 100 A units
Voltage measure	+/- 10 -100- 1000 V
Voltage resolution	10 uV to 10 V , 100uV to 100 V, 1 mV to 1000 V
Voltage Measuring accuracy	0.1 % +/- 0.1 % f.s. (RE1-RE2)
Reference Electrodes	
Input impedance	5 x 10 ¹¹ up to +/- 48 V > 10 Mohm other ranges
Biasing current (amp. Only)	< 1 nA @ 25 °C up to +/-48 V
Common mode range	+/- full scale
Common mode rejection	> 60 dB over the full freq. range
Meters and Interfaces	
A/D resolution	22-16 bit
Max sampling rate	1000 sample/sec (continuous) 800Ksamples/sec (Burst mode)
Synch and triggering interfaces	3-5 V TTL compatible inputs, 3.3 V outputs
EIS module performance	
Measuring frequency range	1mHz- 20 KHz
Accuracy	+/- 0.05% of the desired frequency
Amplitude accuracy	0.1 %
Phase accuracy	+/- 0.05 Deg. +/- 0.001 Deg. /Khz
Operating modes	Standard/fast/low noise/low freq. optimized
Basic Accuracy in impedance	0.1%
Integration time control	Time /n° of sinusoid / mixed (time or n° of sinusoids whatever is the greatest)
General	
Communication Port	Ethernet 10/100 J45

510-V50 general purpose potentiostat 50W output power

Generation	
Voltage control range	10 V / 22 V / 45 V / 90 V (modulus , configuration dependent)
Voltage compliance	11 V /23 V /47 V / 94 V
Current output	5 A / 2 A / 1 A / 0.5 A
Voltage resolution	10 uV to 10 V 100uV to 100 V
Current scales	8 scales (6 for the 5 A Unit)
Current resolution	1 pA (1 nA 10 V unit)
Accuracy	0.1 % +/- 0.1% f.s
Slew rate	>1 V / μ S rise and fall (Hi speed set)
Potentiostat Bandwidth	Selectable 50 Khz- 1 Khz (Hi speed/Hi stab) on < 250 mV pk
Dimensions	19" rack 1U 350 mm depth
Weight	4Kg approx
Power supply	100-250 Vac 85 W max

540-V100 general purpose potentiostat 100W output power

Generation	
Voltage control range	5 V / 10 V / 90 V / (modulus , configuration dependent)
Voltage compliance	5 V /11 V / 94 V
Current output	20 A / 10 A / 1 A
Voltage resolution	10 uV to 10 V 100uV to 100 V
Current scales	4 scales (8 for the 1 A Unit)
Current resolution	1nA (1 pA 90V unit)
Accuracy	0.1 % +/- 0.1% f.s
Slew rate	>1 V / μ S rise and fall (Hi speed set)
Potentiostat Bandwidth	Selectable 50 Khz- 1 Khz (Hi speed/Hi stab) on < 250 mV pk
Dimensions	19" rack 2U 450 mm depth
Weight	10Kg approx
Power supply	100-250 Vac 140 W max

540-V200 general purpose potentiostat 200W output power

Generation	
Voltage control range	5 V / 10 V (modulus , configuration dependent)
Voltage compliance	5 V /11 V
Current output	40 A / 20 A /
Voltage resolution	10 uV
Current scales	4 scales (2 for the 5 V Unit)
Current resolution	1uA
Accuracy	0.3 % +/- 0.1% f.s
Slew rate	>1 V / μ S rise and fall (Hi speed set)
Potentiostat Bandwidth	Selectable 50 Khz- 1 Khz (Hi speed/Hi stab) on < 250 mV pk
Dimensions	19" rack 2U 450 mm depth
Weight	12Kg approx
Power supply	100-250 Vac 250 W max

560-V500 general purpose potentiostat 500W output power

Generation	
Voltage control range	5 V / 10 V (modulus , configuration dependent)
Voltage compliance	5 V /11 V
Current output	100 A / 50 A /
Voltage resolution	10 uV
Current scales	2 scales
Current resolution	1mA
Accuracy	0.3 % +/- 0.1% f.s
Slew rate	>1 V / μ S rise and fall (Hi speed set)
Potentiostat Bandwidth	Selectable 50 Khz- 1 Khz (Hi speed/Hi stab) on < 250 mV pk
Dimensions	19" rack 3U 450 mm depth
Weight	15Kg approx
Power supply	100-250 Vac 140 W max